

## **SYSTEM AND METHOD FOR X-RAY GENERATION**

### **ABSTRACT**

**[0030]** The invention provides a system for generating X-rays via the process of inverse Compton scattering. The system includes a high repetition rate laser adapted to direct high-energy optical pulses in a first direction in a laser cavity and a source of pulsed electron beam adapted to direct electron beam in a second direction opposite to the first direction in the laser cavity. The electron beam interacts with photons in the optical pulses in the laser cavity to produce X-rays in the second direction.